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Search Results -

Terms	Documents
L3 same alanine	2

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L4

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Search History

DATE: Thursday, January 23, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L4	L3 same alanine	2	L4
L3	L1 same (mutant or variant)	87	L3
L2	L1 with trunca$$$	4	L2
L1	pullulanase	1310	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: US 20030013180 A1

L2: Entry 1 of 4 File: PGPB Jan 16, 2003

PGPUB-DOCUMENT-NUMBER: 20030013180
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030013180 A1

TITLE: MODIFIED FORMS OF PULLULANASE

PUBLICATION-DATE: January 16, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
MILLER, BRIAN S.	BURLINGAME	CA	US	
SHETTY, JAYARAMA K.	PLEASANTON	CA	US	

US-CL-CURRENT: 435/210; 435/320.1, 435/325, 435/69.1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 20020076706 A1

L2: Entry 2 of 4 File: PGPB Jun 20, 2002

PGPUB-DOCUMENT-NUMBER: 20020076706
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020076706 A1

TITLE: Signal sequence trapping

PUBLICATION-DATE: June 20, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Duffner, Fiona	Kobenhavn		DK	
Wilting, Reinhard	Farum		DK	
Schnorr, Kirk	Holte		DK	

US-CL-CURRENT: 435/6; 536/23.5, 536/23.7

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 6300115 B1

L2: Entry 3 of 4 File: USPT Oct 9, 2001

US-PAT-NO: 6300115

DOCUMENT-IDENTIFIER: US 6300115 B1

TITLE: Pullulanase expression constructs containing .alpha.-amylase promoter and leader sequences

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 4. Document ID: WO 9509922 A1 MX 201916 B US 5514576 A EP 722501 A1 JP 09501842 W JP 3007159 B2 EP 722501 B1 DE 69423361 E CA 2173453 C

L2: Entry 4 of 4 File: DWPI Apr 13, 1995

DERWENT-ACC-NO: 1995-155263
DERWENT-WEEK: 200227

TITLE: Constructs contg. cloned rice pullulanase gene - for expression in yeast, useful in the brewing and beverage industries

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Clip Img | Image

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Generate Collection | Print

Terms	Documents
L1 with trunca$$$	4

Display Format: - Change Format

Previous Page Next Page

WEST

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Search Results - Record(s) 1 through 2 of 2 returned.

☐ 1. Document ID: US 20030013180 A1

L4: Entry 1 of 2 File: PGPB Jan 16, 2003

PGPUB-DOCUMENT-NUMBER: 20030013180
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030013180 A1

TITLE: MODIFIED FORMS OF PULLULANASE

PUBLICATION-DATE: January 16, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
MILLER, BRIAN S.	BURLINGAME	CA	US	
SHETTY, JAYARAMA K.	PLEASANTON	CA	US	

US-CL-CURRENT: 435/210; 435/320.1, 435/325, 435/69.1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: JP 10327868 A

L4: Entry 2 of 2 File: DWPI Dec 15, 1998

DERWENT-ACC-NO: 1999-099031
DERWENT-WEEK: 199909

TITLE: New mutant pullulanase - useful in bleach-containing detergents

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

Generate Collection | Print

Terms	Documents
L3 same alanine	2

Display Format: - Change Format

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=> d his

     (FILE 'HOME' ENTERED AT 15:41:40 ON 23 JAN 2003)

     INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA,
     CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB,
     DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 15:41:50 ON
     23 JAN 2003
               SEA PULLULANASE
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             138   FILE AGRICOLA
              20   FILE ANABSTR
              16   FILE AQUASCI
             161   FILE BIOBUSINESS
              13   FILE BIOCOMMERCE
             657   FILE BIOSIS
             574   FILE BIOTECHABS
             574   FILE BIOTECHDS
             279   FILE BIOTECHNO
             157   FILE CABA
               6   FILE CANCERLIT
            1381   FILE CAPLUS
             170   FILE CEABA-VTB
               5   FILE CIN
               8   FILE CONFSCI
               8   FILE DDFB
               4   FILE DDFU
             339   FILE DGENE
               8   FILE DRUGB
               5   FILE DRUGU
               1   FILE EMBAL
             325   FILE EMBASE
             149   FILE ESBIOBASE
               5   FILE FEDRIP
              17   FILE FOREGE
             213   FILE FROSTI
             411   FILE FSTA
             217   FILE GENBANK
             189   FILE IFIPAT
             164   FILE JICST-EPLUS
             278   FILE LIFESCI
             264   FILE MEDLINE
               8   FILE OCEAN
             340   FILE PASCAL
               1   FILE PHIN
              18   FILE PROMT
             616   FILE SCISEARCH
             113   FILE TOXCENTER
             840   FILE USPATFULL
              12   FILE USPAT2
               3   FILE VETU
             326   FILE WPIDS
             326   FILE WPINDEX
L1             QUE PULLULANASE
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     FILE 'CAPLUS, BIOSIS, SCISEARCH, FSTA, PASCAL' ENTERED AT 15:43:17 ON 23
     JAN 2003
L2           17 S L1 AND DERAMIFICANS
L3           14 DUP REM L2 (3 DUPLICATES REMOVED)
L4           31 S L1 AND TRUNC?
L5           19 DUP REM L4 (12 DUPLICATES REMOVED)
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L6	14	S L5 AND PY<1998
L7	241	S L1 AND (MUTANT OR VARIANT)
L8	0	S L7 AND (N-TERMINAL ALANINE)
L9	0	S L7 AND ALANINE
L10	19	S L7 AND DELET?
L11	16	DUP REM L10 (3 DUPLICATES REMOVED)

=> d l3 ibib ab 1-14

L3 ANSWER 1 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:736355 CAPLUS
DOCUMENT NUMBER: 137:246620
TITLE: Improved fermentation process
INVENTOR(S): Olsen, Hans Sejr; Pedersen, Sven; Beckerich, Robert; Veit, Christopher; Felby, Claus
PATENT ASSIGNEE(S): Novozymes A/S, Den.; Novozymes North America, Inc
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002074895	A2	20020926	WO 2002-DK179	20020319

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-277383P P 20010319
US 2001-277384P P 20010319
US 2001-304380P P 20010710

AB The present invention relates to an improved process for producing a fermn. product. Thus, ethanol fermn. of whole corn mash by Saccharomyces cerevisiae was enhanced by the addn. of glucoamylase and .beta.-glucanase.

L3 ANSWER 2 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:153676 CAPLUS
DOCUMENT NUMBER: 136:196190
TITLE: **Pullulanase** variants and methods for preparing such variants with predetermined properties
INVENTOR(S): Svendsen, Allan
PATENT ASSIGNEE(S): Novozymes A/S, Den.
SOURCE: U.S., 82 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6350599	B1	20020226	US 2000-514599	20000228
WO 2001051620	A2	20010719	WO 2001-DK20	20010112
WO 2001051620	A3	20020510		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,

BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
EP 1250423 A2 20021023 EP 2001-901118 20010112
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
PRIORITY APPLN. INFO.: DK 2000-45 A 20000120
US 2000-514599 A 20000228
WO 2001-DK20 W 20010112

AB The inventors have modified the amino acid sequence of a **pullulanase** to obtain variants with improved properties, based on the three-dimensional structure of the **pullulanase** Promozyme. The structural coordinates for the solved crystal structure of Promozyme using the isomorphous replacement method are provided. Homol. building also identified the three-dimensional structure of the **pullulanase** from Bacillus **deramificans**. Regions in the three-dimensional structure are identified with increased mobility that can be modified for increased stability. The variants have altered physicochem. properties, e.g. an altered pH optimum, improved thermostability, altered substrate specificity, increased specific activity or an altered cleavage pattern. Thus, the D620A and E649A variants of B. **deramificans** **pullulanase** are constructed by std. oligonucleotide-directed mutagenesis techniques.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:526181 CAPLUS
DOCUMENT NUMBER: 135:118784
TITLE: Bacillus **deramificans** **pullulanase** variants and methods for preparing such variants with predetermined properties
INVENTOR(S): Svendsen, Allan; Andersen, Carsten; Vedel Borchert, Torben
PATENT ASSIGNEE(S): Novozymes A/S, Den.
SOURCE: PCT Int. Appl., 195 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001051620	A2	20010719	WO 2001-DK20	20010112
WO 2001051620	A3	20020510		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6350599 B1 20020226 US 2000-514599 20000228
EP 1250423 A2 20021023 EP 2001-901118 20010112
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
PRIORITY APPLN. INFO.: DK 2000-45 A 20000120
US 2000-514599 A 20000228
WO 2001-DK20 W 20010112

AB The present invention relates to a method for producing a variant of a parent **pullulanase**, the variant having at least one altered property as compared to the parent **pullulanase**. The altered properties include stability (e.g., thermostability), pH dependent

activity, substrate cleavage pattern, specific activity of cleavage, substrate specificity, such as higher activity of isoamylase activity and /or substrate binding. Thirty-one substitution or deletion mutants of Bacillus **deramificans pullulanase** were made by PCR and tested after transformation and fermn. in Bacillus subtilis. The invention also relates to **pullulanase** variants and to the use of **pullulanase** variants of the invention for use in particular starch conversion processes.

L3 ANSWER 4 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:68546 CAPLUS
DOCUMENT NUMBER: 132:104698
TITLE: Glucoamylase variants with improved specific activity and/or thermostability
INVENTOR(S): Nielsen, Bjarne Ronfeldt; Svendsen, Allan; Pedersen, Henrik; Vind, Jesper; Hendriksen, Hanne Vang; Frandsen, Torben Peter
PATENT ASSIGNEE(S): Novo Nordisk A/S, Den.
SOURCE: PCT Int. Appl., 117 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000004136	A1	20000127	WO 1999-DK392	19990709
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9947699	A1	20000207	AU 1999-47699	19990709
EP 1097196	A1	20010509	EP 1999-931029	19990709
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002520047	T2	20020709	JP 2000-560234	19990709
US 6352851	B1	20020305	US 1999-351814	19990712

PRIORITY APPLN. INFO.:

DK 1998-937	A	19980715
DK 1998-1667	A	19981217
US 1998-93528P	P	19980608
US 1999-115545P	P	19990112
WO 1999-DK392	W	19990709

AB The invention relates to a variant of a parent fungal glucoamylase, which exhibits improved thermal stability and/or increased specific activity using saccharide substrates. The x-ray structure and/or model-build structure of Aspergillus awamori variant X100 glucoamylase was subjected to mol. dynamics simulations to identify regions important for temp.-stable activity. The truncated G1 glucoamylase from Aspergillus niger was modified by (1) random mutagenesis, (2) localized random, doped mutagenesis, or (3) PCR shuffling spiked with DNA oligonucleotides in order to prep. variants having improved thermostability compared to the parent enzyme. Such glucoamylase variants have use in starch saccharification, oligosaccharide prodn., specialty syrups, producing ethanol for fuel, producing beverages, and producing org. compds. (citric acid, ascorbic acid, lysine, glutamic acid).

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:34954 CAPLUS
DOCUMENT NUMBER: 132:90065
TITLE: Genetic engineering of starch-debranching enzymes for improved thermostability and specificity
INVENTOR(S): Bisgard-Frantzen, Henrik; Svendsen, Allan
PATENT ASSIGNEE(S): Novo Nordisk A/S, Den.
SOURCE: PCT Int. Appl., 116 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000001796	A2	20000113	WO 1999-DK381	19990702
WO 2000001796	A3	20000309		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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US 6265197	B1	20010724	US 1999-346237	19990701
CA 2332697	AA	20000113	CA 1999-2332697	19990702
AU 9948971	A1	20000124	AU 1999-48971	19990702
EP 1092014	A2	20010418	EP 1999-932675	19990702
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002519054	T2	20020702	JP 2000-558187	19990702
US 2002081670	A1	20020627	US 2001-833435	20010412

PRIORITY APPLN. INFO.:

DK 1998-868	A	19980702
US 1998-94353P	P	19980728
US 1999-346237	A1	19990701
WO 1999-DK381	W	19990702

AB The invention relates to a genetically engineered variant of a parent starch-debranching enzyme, i.e. a **pullulanase** or an isoamylase, the enzyme variant having an improved thermostability at a pH in the range of 4-6 compared to the parent enzyme and/or an increased activity towards amylopectin and/or glycogen compared to the parent enzyme. Methods for producing such starch-debranching enzyme variants with improved thermostability and/or altered substrate specificity are provided. Alignment of **pullulanases** of Bacillus acidopullulyticus and Bacillus **deramificans**, and of isoamylases of Rhodothermus marinus and Pseudomonas amyloderamosa, identified specific loop regions and amino acid residues appropriate for substitution with thermostability-conferring residues. The modified enzymes should yield improved conversion of starch to one or more sugars.

L3 ANSWER 6 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:577030 CAPLUS
DOCUMENT NUMBER: 131:196365
TITLE: N-terminal-truncated analogs of bacterial **pullulanases** retaining normal enzymic activity
INVENTOR(S): Miller, Brian S.; Shetty, Jayarama K.
PATENT ASSIGNEE(S): Genencor International, Inc., USA
SOURCE: PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9945124	A2	19990910	WO 1999-US4627	19990303
WO 9945124	A3	19991118		
W: AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2321817	AA	19990910	CA 1999-2321817	19990303
AU 9929801	A1	19990920	AU 1999-29801	19990303
BR 9908422	A	20001031	BR 1999-8422	19990303
EP 1060253	A2	20001220	EP 1999-911068	19990303
R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, FI				
JP 2002505108	T2	20020219	JP 2000-534655	19990303

PRIORITY APPLN. INFO.: US 1998-34630 A 19980304
WO 1999-US4627 W 19990303

AB **Pullulanases** from Bacillus and Klebsiella that retain normal 1,6-.alpha.-glycosidase activity despite having truncations of up to 300 amino acids from the N-terminal domain, optionally with further amino acid substitutions, and that may be useful in the starch industry are described. The present invention provides methods for producing the modified **pullulanase**, enzymic compns. comprising the modified **pullulanase**, and methods for the saccharification of starch comprising the use of the enzymic compns. Expression of the Bacillus **deramificans pullulanase** gene in B. licheniformis hosts lacking the Carlsberg subtilisin and endopeptidase Glu-C resulted in the appearance of a series of N-terminal deletions of the **pullulanase** . Saccharification of starch with mixts. of glucoamylase (20%) and the **pullulanases** (80%) led to the saccharification of the starch without the formation of disaccharides.

L3 ANSWER 7 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:9716 CAPLUS
DOCUMENT NUMBER: 130:71318
TITLE: An oral care composition comprising a Bacillus **pullulanase** and a dextranase
INVENTOR(S): Tsuchiya, Rie; Nielsen, Peder Holk; Aaslyng, Dorrit
PATENT ASSIGNEE(S): Novo Nordisk A/S, Den.
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9857653	A1	19981223	WO 1998-DK238	19980608
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				

AU 9876403	A1	19990104	AU 1998-76403	19980608
AU 740108	B2	20011101		
EP 1011700	A1	20000628	EP 1998-924072	19980608
EP 1011700	B1	20020904		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI				
JP 2002515911	T2	20020528	JP 1999-503598	19980608
AT 223223	E	20020915	AT 1998-924072	19980608

PRIORITY APPLN. INFO.: DK 1997-710 A 19970617
US 1997-50815P P 19970626
WO 1998-DK238 W 19980608

AB The present invention relates to oral care compns. and products, comprising a Bacillus **pullulanase** and a dextranase, and optionally other enzymes, such as a mutanase. An example is given showing that 2 Bacillus **pullulanases** in combination with Paecilomyces dextranase exhibit synergistic effect when hydrolyzing mutan, while the std. Enterobacter **pullulanase** in combination with the same dextranase does not.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 8 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:127595 BIOSIS
DOCUMENT NUMBER: PREV200200127595
TITLE: **Pullulanase** producing microganisms.
AUTHOR(S): Dewer, P.; Amory, A.
CORPORATE SOURCE: Aalst Belgium
ASSIGNEE: GENENCOR INTERNATIONAL, INC.
PATENT INFORMATION: US 5817498 Oct. 6, 1998
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Oct. 6, 1998) Vol. 1215, No. 1, pp. 539. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

L3 ANSWER 9 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:106241 BIOSIS
DOCUMENT NUMBER: PREV200200106241
TITLE: Expression system for novel **pullulanase**.
AUTHOR(S): Deweer, P.; Amory, A.
CORPORATE SOURCE: Aalst Belgium
ASSIGNEE: GENENCOR INTERNATIONAL, INC.
PATENT INFORMATION: US 5736375 April 7, 1998
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (April 7, 1998) Vol. 1209, No. 1, pp. 456. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

L3 ANSWER 10 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:103436 BIOSIS
DOCUMENT NUMBER: PREV200200103436
TITLE: Process for the production of novel **pullulanase**.
AUTHOR(S): Deweer, P.; Amory, A.
CORPORATE SOURCE: Aalst Belgium
ASSIGNEE: GENENCOR INTERNATIONAL, INC.
PATENT INFORMATION: US 5721128 Feb. 24, 1998
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Feb. 24, 1998) Vol. 1207, No. 4, pp. 2918. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

L3 ANSWER 11 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2002:103435 BIOSIS

DOCUMENT NUMBER: PREV200200103435
TITLE: **Pullulanase**.
AUTHOR(S): Deweer, P.; Amory, A.
CORPORATE SOURCE: Aalst Belgium
ASSIGNEE: GENENCOR INTERNATIONAL, INC.
PATENT INFORMATION: US 5721127 Feb. 24, 1998
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Feb. 24, 1998) Vol. 1207, No. 4, pp. 2918. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English

L3 ANSWER 12 OF 14 SCISEARCH COPYRIGHT 2003 ISI (R)
ACCESSION NUMBER: 96:858657 SCISEARCH
THE GENUINE ARTICLE: VR091
TITLE: Authorization requested to use **pullulanase** from Bacillus licheniformis with a gene coding for Bacillus **deramificans** in starch saccharification
AUTHOR: Percheron F
SOURCE: BULLETIN DE L ACADEMIE NATIONALE DE MEDECINE, (4 JUN 1996) Vol. 180, No. 6, pp. 1519-1520.
Publisher: ACADEMIE NATL DE MEDECINE, 16 RUE BONAPARTE, 75272 PARIS 06, FRANCE.
ISSN: 0001-4079.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: CLIN
LANGUAGE: French
REFERENCE COUNT: 0

L3 ANSWER 13 OF 14 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 1
ACCESSION NUMBER: 1995:702381 CAPLUS
DOCUMENT NUMBER: 123:142344
TITLE: Safety evaluation of **pullulanase** enzyme preparation derived from Bacillus licheniformis containing the **pullulanase** gene from Bacillus **deramificans**
AUTHOR(S): Modderman, John P.; Foley, Holly H.
CORPORATE SOURCE: Keller and Heckman, Washington, DC, 20001, USA
SOURCE: Regulatory Toxicology and Pharmacology (1995), 21(3), 375-81
CODEN: RTOPDW; ISSN: 0273-2300
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Pullulanase** enzyme is an amylopectin debranching enzyme used in starch hydrolysis. This article describes studies conducted to investigate the safety of a **pullulanase** enzyme prepn. produced by a strain of Bacillus licheniformis that has been transformed by introduction of genetic material from another Bacillus species, B. **deramificans**. A 4-wk dietary toxicity study in rats was conducted in which test animals received **pullulanase** in the feed at concns. of 0.2, 1.0, and 5.0%. No adverse treatment-related effects were obsd. Lack of genetic toxicity potential was demonstrated by the results of a bacterial mutation assay in Salmonella typhimurium strains TA98, TA100, TA1535, TA1537, and TA1538, in an in vitro histidine forward mutation study in mouse lymphoma cells, and in in vivo mouse bone marrow chromosome aberration and micronucleus assays. The enzyme prepn. also has been shown to be a nonirritant in eye and primary dermal irritation tests in rabbits and is nontoxic by inhalation exposure. Finally, the genetically altered B. licheniformis has been demonstrated to be nonpathogenic upon single i.p. injection to rats of both live and killed cells at doses up to 1011 cells/kg. The results of these studies demonstrate that the enzyme prepn. may be considered safe when employed in starch processing.

L3 ANSWER 14 OF 14 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1994:624994 CAPLUS
DOCUMENT NUMBER: 121:224994
TITLE: A novel **pullulanase** that is thermostable under acid conditions and cloning and expression of the gene encoding it
INVENTOR(S): DeWeer, Philippe; Amory, Antoine
PATENT ASSIGNEE(S): Solvay et Cie., Belg.
SOURCE: Eur. Pat. Appl., 61 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 605040	A1	19940706	EP 1993-203593	19931220
EP 605040	B1	19990811		
R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, PT				
BE 1006483	A3	19940913	BE 1992-1156	19921228
BE 1007313	A3	19950516	BE 1993-744	19930715
BE 1007723	A6	19951010	BE 1993-1278	19931119
AT 183236	E	19990815	AT 1993-203593	19931220
ES 2137222	T3	19991216	ES 1993-203593	19931220
FI 9305900	A	19940629	FI 1993-5900	19931228
CN 1090325	A	19940803	CN 1993-121736	19931228
CN 1061089	B	20010124		
JP 06217770	A2	19940809	JP 1993-337202	19931228
CA 2112028	AA	19940629	CA 1993-2112028	19931229
AU 9352759	A1	19940707	AU 1993-52759	19931230
AU 686574	B2	19980212		
US 5721127	A	19980224	US 1995-474140	19950607
US 5721128	A	19980224	US 1995-477630	19950607
US 5731174	A	19980324	US 1995-472293	19950607
US 5736375	A	19980407	US 1995-474545	19950607
US 6074854	A	20000613	US 1997-996733	19971223
AU 9864831	A1	19980730	AU 1998-64831	19980511

PRIORITY APPLN. INFO.:

BE 1992-1156	A	19921228
BE 1993-744	A	19930715
BE 1993-1278	A	19931119
US 1993-174893	B1	19931228
US 1995-472293	A1	19950607

AB A novel **pullulanase** that is heat-stable at acid pHs is obtained from Bacillus and the gene encoding it is cloned and expressed for manuf. of the enzyme for processing polysaccharides. The enzyme has a temp. optimum of 55-65.degree. at pH 4.3 and retains >80% of its activity in the pH range 3.8-4.9. An isolate of Bacillus **deramificans** capable of hydrolyzing a pullulan deriv. at 37.degree.; the strain (B. **deramificans** T89.117D) was not itself heat-tolerant. The enzyme accumulated in the medium and was purified 10-fold (32% yield) from cultures grown on yeast ext./potato starch medium by centrifugation, heat treatment, acetone pptn., and ion-exchange chromatog. The gene was cloned by expression from a Sau3A partial bank in pBR322. The cloned gene was expressed in a Bacillus licheniformis host from which the alk. proteinase gene had been deleted using either an autonomously replicating or integrating plasmid.